

LEE 001

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SITE REFERRAL PACKAGE

NAME OF SITE: Lee's Lane Landfill

SITE NO:

LOCATION: Louisville, Kentucky

1. DESCRIPTION OF SITE: Lee's Lane Landfill is located on a 125-acre tract in Jefferson County adjacent to the Ohio River and has 4,600 feet of river frontage. The eastern edge of the landfill fringes the Ohio River flood wall right of way. (See map attached). There are approximately 400 drums containing hazardous wastes situated in the flood plain along the bank of the Ohio River. The State Office of General Council is currently seeking legal means of relief at the site through the estate's administrator.
  - A. Owner: The Hofgesang Foundation.
  - B. Operator: Inactive.
  - C. Generator(s) of Waste on Site: Wastes were first received in 1952, but the drums that are now in the flood plain were deposited there some time after 1978. The generators of the wastes are unknown.
  - D. Description of Waste on Site: The waste identified by the State from drum samples contained benzene and phenolic type compounds. Fifty-one compounds were tentatively identified.
2. Location of Site: Louisville, Jefferson County, Kentucky. (See map attached).
3. Contamination Found in Association with Site: Organic scans were performed on two samples collected from the drums. More than fifty compounds were tentatively identified from two drum samples. Flash points were determined on sixteen drum samples. Four samples had flash points above 150°F. The remaining twelve samples had flash points below 120°F (see analytical data attached). The State Department for Natural Resources and Environmental Protection collected and performed all analyses of the samples. All analytical data is included in the attachments.
4. Environmental Effects Noted: None to date.
5. Health Threats Noted or Reported: The drums of hazardous

000002

-2-

materials are situated in the flood plain of the Ohio River which is a public drinking water supply.

6. Hazardous Substances/Pollutants Involved:

1. Benzene
2. Benzene, Propyl
3. 2-Pentanone, 4-Methyl
4. Ethene, Tetrachloro
5. Nonane, 5-Butyl
6. 3-Nonyne
7. Nonane
8. Nonane, 2-Methyl
9. Nonane, 3-Methyl
10. Octane, 2,7-Dimethyl
11. Benzene, 1,3-Diethyl
12. Bicyclo Octane
13. 2-Propanone
14. 2-Pentanone, 3-Methylene
15. Methyl Benzene
16. Phenol
17. Pentalene, Octahydro-2-Methyl
18. Ethyl Benzene
19. Cyclohexane, (1-Methylethyl)
20. Benzene, (1-Methylethyl)
21. Cyclohexane, Propyl
22. Phenol, 2-Methyl
23. Benzene, Dimethyl
24. Phenol, 2-Methyl
25. Phenol, Methyl
26. 1,1-Bicyclopentyl
27. 2,3-Heptadien-5-YNE, 2,4-Dimethyl
28. Phenol, 4-Ethyl
29. Phenol, 2-Ethyl
30. Phenol, 3-Ethyl
31. Phenol, 2,6-Bis(1,1-Dimethylethyl)-4-Methyl
32. Benzene, 1-Methyl-3-Propyl
33. Cyclohexane, Butyl
34. Phenol, 4-(1-Methylethyl)
35. Phenol, 3,4-Dimethyl
36. Benzene, 1-Methoxy-3-Methyl
37. Benzene, 1,3,5-Trimethyl
38. Phenol, 2,4-Dimethyl
39. Benzene, 1,2,3-trimethyl
40. Benzene, 1,2,4-Trimethyl
41. Benzene, 1,3,5-Trimethyl
42. Phenol, 4-Octyl
43. Decane
44. Phenol, 2,3,5-Trimethyl
45. Phenol, 2-ethyl-4-methyl

000003

-3-

46. Benzene, 4-Ethyl-1,2-Dimethyl
47. Benzene, 2-Ethyl-1,4-Dimethyl
48. Decane, 2-Methyl
49. Dodecane
50. Undecane
51. Cyclohexane, Methyl-

The compounds addressed under A and B of this Section represent only some of the more common substances detected at the site. Further information will be supplied upon request.

A. Health Effects of Each Pollutant:

Benzene

Benzene is a volatile, colorless, liquid hydrocarbon produced principally from coal tar distillation and from petroleum by catalytic reforming of light naphthas from which it is isolated by distillation or solvent extraction. The broad utility spectrum of benzene includes its use as an intermediate for synthesis in the chemical and pharmaceutical industries including the manufacture of styrene, cyclohexane, detergents, and pesticides, a thinner for lacquers, a degreasing and cleaning agent, a solvent in the rubber industry, an anti-knock fuel additive, a general solvent in laboratories, a solvent for industrial extraction and rectification, and in the preparation and use of inks in the graphic arts industries.

For the maximum protection of human health from the potential carcinogenic effects of exposure to benzene through ingestion of water and contaminated aquatic organisms, the ambient water concentration is zero. Benzene is acutely toxic from ingestion or inhalation. Symptoms include irritation of mucous membranes, restlessness, convulsions, excitement, and depression. Death may follow from respiratory failure. Chronic effects include bone marrow depression, aplasia, and rarely leukemia. Harmful amounts may be absorbed through the skin.

Ambient Water Quality Criteria  
Criteria and Standards Division  
Office of Water Planning and Standards  
U.S. EPA, Washington, D.C.

000004

Phenol

Phenol, also known as carbolic acid, is a large volume industrial chemical produced almost entirely as an intermediate for the preparation of other chemicals. Phenol is soluble at all proportions in water at 66°C or greater. It is also soluble in relatively non-polar solvents such as benzene, petroleum, and oils.

In acute phenol poisoning, the main effect is on the central nervous system. Absorption from spilling phenolic solutions on the skin may be very rapid and death results from collapse within 30 minutes to several hours. Death has resulted from absorption of phenol through a skin area of 64 square inches. Where death is delayed, damage to the kidneys, liver, pancreas, spleen, and edema of the lungs may result. Chronic exposure to low concentrations of phenol vapor or mist results in digestive disturbances (vomiting, difficulty in swallowing, excessive salivation, diarrhea, loss of appetite), nervous disorders (headache, fainting, dizziness, mental disturbances), and skin eruptions. For the protection of human health from phenol ingested through water and through contaminated aquatic organisms, the concentration in water should not exceed 3.4 mg/l.

REFERENCE

Ambient Water Quality Criteria  
Criteria and Standards Division  
Office of Water Planning and Standards  
U.S. Environmental Protection Agency  
Washington, D.C.

Dangerous Properties of Industrial Materials  
Fifth Edition 1979, N. Irving Sax

2,4-Dimethylphenol

2,4-Dimethylphenol (DMP) is a natural product derived from coal and petroleum sources. Although no direct commercial application for 2,4-DMP appears to exist presently, its wide use as a chemical intermediate, its toxicity to aquatic life, and its carcinogenic effect in mammals clearly indicate the potential hazard to aquatic and terrestrial life.

Due to a lack of sufficient definitive data of mammalian toxicology and human health effects, a criterion to protect human health from toxic effects due to exposure to 2,4-dimethylphenol ingested through water and through contaminated aquatic organisms cannot be set at this time. In order to protect public health, exposure to this compound should be minimized as soon as possible.

#### REFERENCE

Ambient Water Quality Criteria  
Criteria and Standards Division  
Office of Water Planning and Standards  
U.S. Environmental Protection Agency  
Washington, D.C.

#### Ethylbenzene:

Ethylbenzene is a colorless liquid which has an aromatic odor. When this compound is exposed to heat or flame it can be a moderate fire hazard. The liquid is an irritant to the skin and mucous membranes. A concentration of 0.1% of the vapor in air is an irritant to the eyes of humans, and a concentration of 0.2% is extremely irritating at first, then causes dizziness, irritation of the nose and throat, and a sense of constriction of the chest. The U.S. EPA proposed to evaluate the carcinogenic potential of ethylbenzene in 1976, but test results are not yet available. The potential adverse human health effects following exposure to ethylbenzene were stated (40 CFR 1910.1034) to be:

- (1) kidney disease
- (2) liver disease
- (3) chronic respiratory disease
- (4) skin disease

For the protection of human health from the toxic properties of ethylbenzene ingested through water and contaminated aquatic organisms, the ambient water quality criterion is 1.1 mg/l.

#### REFERENCE

Ambient Water Quality Criteria  
Criteria and Standards Division  
Office of Water Planning and Standards  
U.S. Environmental Protection Agency  
Washington, D.C.

000006

-6-

## B. Environmental Effects of Each Pollutant:

Benzene

Benzene has been demonstrated to affect aquatic life adversely. Reproductive impairment has been observed in fish at benzene concentrations well below the lethal level. Benzene in the environment has been demonstrated to exert deleterious effects at many levels of the food chain. Nearly all of the adverse acute and chronic effects occurred at concentrations above 20,000 ug/l. For benzene the criterion to protect freshwater aquatic life is 3,100 ug/l and 920 ug/l for saltwater life.

REFERENCE

Ambient Water Quality Criteria  
Criteria and Standards Division  
Officer of Water Planning and Standards  
U.S. Environmental Protection Agency  
Washington, D.C.

2,4-Dimethylphenol

For 2,4-Dimethylphenol, the criterion to protect freshwater aquatic life, as derived using the guidelines, is 38 ug/l as a 24-hour average and the concentration should never exceed 86 ug/l at any time.

REFERENCE

Ambient Water Quality Criteria  
Criteria and Standards Division  
Officer of Water Planning and Standards  
U.S. Environmental Protection Agency  
Washington, D.C.

Ethylbenzene

No freshwater criterion can be derived for ethylbenzene using the guidelines because no Final Chronic Value for either fish or invertebrate species or a good substitute for either value is available, and there are insufficient data to estimate a criterion using other procedures.

000007

-7-

REFERENCE

Ambient Water Quality Criteria  
Criteria and Standards Division  
Office of Water Planning and Standards  
U.S. Environmental Protection Agency  
Washington, D.C.

Phenol

The phenol molecule easily substitutes in the environment to form compounds such as halophenols, which may be more toxic than the parent molecule. Phenol is degraded by a number of bacteria and fungi that may cause slime growth and depress dissolved oxygen in the receiving waters; thus, lowering water quality. For phenol the criterion to protect freshwater aquatic life, as derived using the Guidelines, is 600 ug/l as a 24-hour average, and the concentration should not exceed 3,400 ug/l at any time.

REFERENCE

Ambient Water Quality Criteria  
Criteria and Standards Division  
Office of Water Planning and Standards  
U.S. Environmental Protection Agency  
Washington, D.C.

Dangerous Properties of Industrial Materials,  
Fifth Edition, 1979 N. Irving Sax

## Attachments:

Copy of Tentative Disposition  
Copy of Technical File